

(ii) Fifty hours at maximum continuous power and rotational speed.

(iii) Fifty hours, consisting of ten 5-hour cycles composed of:

(A) Five accelerations and decelerations between idle and takeoff power and rotational speed,

(B) Four and one half hours at approximately even incremental conditions from idle up to, but not including, maximum continuous power and rotational speed, and

(C) Thirty minutes at idle.

(2) The operation of the propeller throughout the engine endurance tests prescribed in part 33 of this chapter.

(c) An analysis based on tests of propellers of similar design may be used in place of the tests of paragraphs (a) and (b) of this section.

[Amdt. No. 35-8, 73 FR 63348, Oct. 24, 2008]

§ 35.40 Functional test.

The variable-pitch propeller system must be subjected to the applicable functional tests of this section. The same propeller system used in the endurance test (§ 35.39) must be used in the functional tests and must be driven by a representative engine on a test stand or on an airplane. The propeller must complete these tests without evidence of failure or malfunction. This test may be combined with the endurance test for accumulation of cycles.

(a) Manually-controllable propellers. Five hundred representative flight cycles must be made across the range of pitch and rotational speed.

(b) Governing propellers. Fifteen hundred complete cycles must be made across the range of pitch and rotational speed.

(c) Feathering propellers. Fifty cycles of feather and unfeather operation must be made.

(d) Reversible-pitch propellers. Two hundred complete cycles of control must be made from lowest normal pitch to maximum reverse pitch. During each cycle, the propeller must run for 30 seconds at the maximum power and rotational speed selected by the applicant for maximum reverse pitch.

(e) An analysis based on tests of propellers of similar design may be used in place of the tests of this section.

[Amdt. No. 35-8, 73 FR 63349, Oct. 24, 2008]

§ 35.41 Overspeed and overtorque.

(a) When the applicant seeks approval of a transient maximum propeller overspeed, the applicant must demonstrate that the propeller is capable of further operation without maintenance action at the maximum propeller overspeed condition. This may be accomplished by:

(1) Performance of 20 runs, each of 30 seconds duration, at the maximum propeller overspeed condition; or

(2) Analysis based on test or service experience.

(b) When the applicant seeks approval of a transient maximum propeller overtorque, the applicant must demonstrate that the propeller is capable of further operation without maintenance action at the maximum propeller overtorque condition. This may be accomplished by:

(1) Performance of 20 runs, each of 30 seconds duration, at the maximum propeller overtorque condition; or

(2) Analysis based on test or service experience.

[Amdt. No. 35-8, 73 FR 63349, Oct. 24, 2008]

§ 35.42 Components of the propeller control system.

The applicant must demonstrate by tests, analysis based on tests, or service experience on similar components, that each propeller blade pitch control system component, including governors, pitch change assemblies, pitch locks, mechanical stops, and feathering system components, can withstand cyclic operation that simulates the normal load and pitch change travel to which the component would be subjected during the initially declared overhaul period or during a minimum of 1,000 hours of typical operation in service.

[Amdt. No. 35-8, 73 FR 63349, Oct. 24, 2008]

§ 35.43 Propeller hydraulic components.

Applicants must show by test, validated analysis, or both, that propeller components that contain hydraulic pressure and whose structural failure or leakage from a structural failure could cause a hazardous propeller effect demonstrate structural integrity by:

§ 35.45

(a) A proof pressure test to 1.5 times the maximum operating pressure for one minute without permanent deformation or leakage that would prevent performance of the intended function.

(b) A burst pressure test to 2.0 times the maximum operating pressure for one minute without failure. Leakage is permitted and seals may be excluded from the test.

[Amdt. No. 35-8, 73 FR 63349, Oct. 24, 2008]

§ 35.45 [Reserved]

§ 35.47 [Reserved]

APPENDIX A TO PART 35—INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

A35.1 GENERAL

(a) This appendix specifies requirements for the preparation of Instructions for Continued Airworthiness as required by § 35.4.

(b) The Instructions for Continued Airworthiness for each propeller must include the Instructions for Continued Airworthiness for all propeller parts. If Instructions for Continued Airworthiness are not supplied by the propeller part manufacturer for a propeller part, the Instructions for Continued Airworthiness for the propeller must include the information essential to the continued airworthiness of the propeller.

(c) The applicant must submit to the FAA a program to show how changes to the Instructions for Continued Airworthiness made by the applicant or by the manufacturers of propeller parts will be distributed.

A35.2 FORMAT

(a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.

(b) The format of the manual or manuals must provide for a practical arrangement.

A35.3 CONTENT

The contents of the manual must be prepared in the English language. The Instructions for Continued Airworthiness must contain the following sections and information:

(a) *Propeller Maintenance Section.* (1) Introduction information that includes an explanation of the propeller's features and data to the extent necessary for maintenance or preventive maintenance.

(2) A detailed description of the propeller and its systems and installations.

(3) Basic control and operation information describing how the propeller components and systems are controlled and how they operate, including any special procedures that apply.

(4) Instructions for uncrating, acceptance checking, lifting, and installing the propeller.

(5) Instructions for propeller operational checks.

(6) Scheduling information for each part of the propeller that provides the recommended periods at which it should be cleaned, adjusted, and tested, the applicable wear tolerances, and the degree of work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if it shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the propeller.

(7) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.

(8) Information describing the order and method of removing and replacing propeller parts with any necessary precautions to be taken.

(9) A list of the special tools needed for maintenance other than for overhauls.

(b) *Propeller Overhaul Section.* (1) Disassembly information including the order and method of disassembly for overhaul.

(2) Cleaning and inspection instructions that cover the materials and apparatus to be used and methods and precautions to be taken during overhaul. Methods of overhaul inspection must also be included.

(3) Details of all fits and clearances relevant to overhaul.

(4) Details of repair methods for worn or otherwise substandard parts and components along with information necessary to determine when replacement is necessary.

(5) The order and method of assembly at overhaul.

(6) Instructions for testing after overhaul.

(7) Instructions for storage preparation including any storage limits.

(8) A list of tools needed for overhaul.

A35.4 AIRWORTHINESS LIMITATIONS SECTION

The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, inspection interval, and related procedure required for type certification. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations

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